Production developments of ...

tially dissolving urea nitrate and water by removing them from the reaction zone by application of catalysts); (iii) introduction of two stage distillation by which the yield of ammonia nitrate could be cut down from 3.5 - 4.5 tons per ton of urea nitrate to one ton; (iv) introduction of carbonic acid in liquid from which would eliminate costs on compressors and would increase the conversion to urea nitrate from 65 to 70 %; (v) industrial requirements emphasize the cut of biurette content from 0.8 to 0.03 % and the technology of the process should be improved to give this; (vi) improvement of the physico-chemical properties of urea nitrate, its feeding and granulating properties and others; (vii) investigation into the synthesis of urea nitrate at higher pressures and temperatures in the coil type apparatus; (viii) for large tonnage production, large plants and machinery are needed and handling including railway transporters. In the last decade production of complex fertilizers in the USSR and elsewhere has been developed along the line of nitric acid decompositions of phosphates. Complex fertilizers contain all basic materials required for growth (N_2, P_2O_5, K_2O). The compa-

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rison of methods used and composition of complexis is given below (in %):

Production method	N	P_2O_5	K_2O	Total
Freezing $Ca(NO_3)_2$	14.8	14.8	15.2	44.8
Sulphuric acid	11.8	11.8	11.8	35.4
Sulphate	14.5	10.0	10.0	34.5
Carbonates	14.0	10.5	10.5	35.0.

On other forms of nitrogeneous fertilizers the authors mention urea-nitrate condensation with formaldehyde; the product of this reaction contains about 40 % of total nitrogen of which 25 % is water soluble. This product could be used as an additive material to other nitrogeneous and phosphate fertilizers. There are 5 figures, and 14 Soviet-bloc references.

SUBMITTED: April 25, 1960

Card 5/6

FRIDMAN, S.D.; KLEVKE, V.A.

Urea-formaldehyde fertilizers. Zhur.prikl.khim. 34 no.10:2206-2216 O '61. (MIRA 14:11)
(Urea) (Formaldehyde) (Fertilizers and manures).

POZIN, Maks Yefimovich. Prinimali uchastiye: ARSEN'YEVA, L.Z.; KAGANOVICH, Yu.Ya.; KLEBANOV, G.S.; KLEVKE, V.A.; KOPYLEV, B.A.; SOKOLOVSKIY, A.A.; MAKOVETSKIY, L.A., red.; GRIVA, Z.I., red.; ERLIKH, Ye.Ya., tekhn. red.

[Technology of mineral salts; fertilisers, pesticides, industrial salts, oxides and acids] Tekhnologiia mineral'nykh solei; udobreniia, pestitsidov, promyshlennykh solei, okislov i kislot. 2., izd. perer. i dop. pri uchastii: L.Z.Arsen'evoi i dr. Leningrad, Gos. nauchno-tekhn. izd-vo khim. lit-ry, 1961. 1008 p. (MIRA 14:10)
(Fertilisers and manures) (Salts)

RASSOKHSKAYA, I.S.; KLEVKE, V.A.; SHENKIN, Ya.S.

Reaction of calcium nitrate with phosphoric acid. Khim.prom. no.11: 809-812 N '61. (MIRA 15:1)
(Calcium nitrate) (Phosphoric acid)

YANISHEVSKIY, F. V., kand. sel'skokhozyaystvennykh nauk; KLEVKE, V. A.

Technology of liquid nitrogen and complex fertilizers and effectiveness of their use in agriculture. Zhur. VKHO 7 no.5: 534-542 '62. (MIRA 15:10)

(Fertilizers and manures)

KLEVKE, Valentin Al'vinovich; POLYAKOV, Nikolay Nikolayevich; ARSEN'YEVA, Lyudmila Zakharovna; AVRAMOVA, N.S., red.; KOGAN, V.V., tekhn. red.

[Technology of nitrogen fertilizers] Tekhnologiia azotnykh udobrenii. Izd.2., perer., Moskva, Goskhimizdat, 1963. 391 p. (MIRA 16:6)

(Nitrogen fertilizers)

S/078/63/008/003/005/020
B117/B186

AUTHORS: Rassonskaya, I. S., Shenkin, Ya. S., Klevke, V. A.

TITLE: Reaction of phosphoric acid with aluminum, iron, and lanthanum nitrates

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 8, no. 3, 1965, 617-621

TEXT: This reaction was studied thermographically and by x-ray phase analysis. In general, the reaction of phosphoric acid with aluminum and iron nitrates can be expressed by the equation proposed earlier (patent FRG 1018850):

$$Me(NO_3)_3 \cdot 9H_2O + H_3PO_4 = MePO_4 + 3HNO_3 + 9H_2O.$$

When the ratio of the reacting components is 1:1, the nitrates decompose at 130°C, and tertiary metal phosphates form. The nitric acid evaporates at nearly constant temperature, which suggests the formation of a saturated solution, just as in the reaction of calcium nitrate with phosphoric acid and monocalcium phosphate. The thermogram for $La(NO_3)_3 \cdot 6H_2O$ showed a melting point at 65°C, crystallization and complete

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dehydrogenation at 210°C, and decomposition at 380-410°C. Decomposition of lanthanum nitrate mixed with phosphoric acid in a 1:1 ratio proceeds similarly to that of the two first-mentioned nitrates, but at a lower temperature (122°C). X-ray phase analysis showed the presence of tertiary lanthanum phosphate in the solid phase. The experimental results agreed well with the thermodynamic values calculated for the decomposition of aluminum and iron nitrates in phosphoric acid. There are 7 figures and 2 tables.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N.S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N.S. Kurnakov of the Academy of Sciences USSR)

SUBMITTED: August 15, 1962

KIL'MAN, Ya.I.; KLEVKE, V.A.

Production of ammonium nitrate by the one-step method. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch.i tekh.inform. 16 no.8: 14-18 '63. (MIRA 16:10)

SHENKIN, Ya.S.; KLEVKE, V.A.; LYUDKOVSKAYA, B.G.

Interaction of urea with the products of the nitric acid decomposition of phosphates. Dokl.AN SSSR 149 no.3:656-659 Mr '63. (MIRA 16:4)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut azotnoy promyshlennosti i produktov organicheskogo sinteza. Predstavleno akademikom S.I.Vol'fkovichem.

(Urea) (Phosphates)

SHENKIN, Ya.S.; KIEVKE, V.A.

Interaction of urea with the products of phosphate decomposition by nitric acid. Khim.prom. no.1:57-61 Ja '64. (MIRA 17:2)

IVANOVSKIY, F.P.,kand. tekhn. nauk, red.; FURMAN, M.S., doktor khim.nauk, red.; SAMARIN, B.P., red.; KRICHEVSKIY,I.R., prof., doktor khim. nauk, red.; GOLUBEV, I.F., doktor tekhn.nauk,red.; KRASIL'SHCHIKOV,A.I., doktor khim. nauk, red.; KLEVKE, V.A., kand. tekhn. nauk, red.; LEVCHENKO, G.T., kand. khim. nauk,red.; GEL'PERIN, I.I., kand. tekhn. nauk, red.; GYSTRAKH, M.L., red.; KREYSBERG, A.Ya., red.; TSUKERMAN, A.M., red.; KOGAN, V.V., tekhn. red.

[Chemistry and technology of the products of organic synthesis; intermediate products for the synthesis of polyamides] Khimiia i tekhnologiia produktov organicheskogo sinteza; poluprodukty dlia sinteza poliamidov. Moskva, Goskhimizdat, 1963. 255 p. (MIRA 17:3)

1. Moscow. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut azotnoy promyshlennosti. 2. Zamestitel' direktora Gosudarstvennogo nauchno-issledovatel'skogo i proyektnogo instituta azotnoy promyshlennosti (for Ivanovskiy). 3. Zamestitel' direktora po nauchnoy chasti Gosudarstvennogo nauchno-issledovatel'skogo i proyektnogo instituta azotnoy promyshlennosti (for Furman). 4. Glavnyy inzhener Gosudarstvennogo nauchno-issledovatel'skogo i proyektnogo instituta azotnoy promyshlennosti (for Samarin).

ACCESSION NR: AP4034713 S/0064/64/000/004/0244/0248

AUTHOR: Iovi, A; Torocheshnikov, N. S.; Lyudkovskaya, M. A.; Klevke, V. A.; Mukhina, A. I.

TITLE: Production of urea based on carbon monoxide

SOURCE: Khimicheskaya promy*shlennost', no. 4, 1964, 244-248

TOPIC TAGS: urea, production, process, carbon monoxide, sulfur, solubility, methanol, sulfur methanol system, urea methanol system, heat of solution, reaction mechanism

ABSTRACT: To obtain data for the production of urea from CO, NH_3 and S in methanol solvent, the solubility of sulfur and of urea in methanol was determined, and the effects of temperature and pressure on the reaction were investigated. Sulfur is only slightly soluble in methanol, < 0.5 gm/100 gm at 90C, still less soluble in methanol + H_2O, and only slightly more soluble in methanol + H_2S or methanol NH_3 (2 gm/100gm methanol + 11.5% NH_3 at 150C). The solubility of sulfur in methanol containing NH_3 + H_2S is sufficiently great (fig. 1, lines 4,5) to warrant using these methanol mixtures as solvents for the urea-forming reaction. The

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ACCESSION NR: AP4034713

solubility of urea in methanol is shown in fig. 2. The heats of solution of urea in methanol (5420 cal/mol) and of sulfur in methanol and in the various methanol, H_2S + NH_3 mixtures were calculated. The effect of temperature on urea yield was studied in a series of laboratory runs: reaction time, 1 hour; S:NH_3:CO = 1:1.28:1.36. The reaction mechanism proposed by R. A. Franz, F. Applegath (J. Org. Chem., 26, No. 9, 3304 (1961)) was substantiated. The rapid pressure drop in the first 10 minutes of reaction was attributed to solution of CO and formation of urea and ammonium hydrosulfide; after reaction was established, the slight pressure rise was attributed to H_2S formation. The yield of urea increased as temperature increased from 90 to 120C, then progressively decreased at higher temperatures due to isocyanuric acid decomposition. Orig. art. has: 9 figures, 1 table and 6 equations.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 02

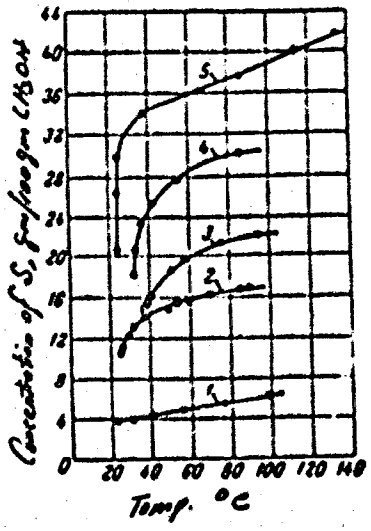
SUB CODE: IC NO REF SOV: 008 OTHER: 010

Card 2/4

ACCESSION NR: AP4034713

ENCLOSURE: 01

Fig. 1. Solubility of sulfur in methanol containing ammonia and hydrogen sulfide:
1--11.5% NH_3 0.83% H_2S;
2--11.5% NH_3 2.5% H_2S;
3--21% NH_3 2.55% H_2S;
4--21% NH_3 3.5% H_2S;
5--21.5% NH_3 4.33% H_2S.



Card 3/4

ACCESSION NR: AP4034713

ENCLOSURE: 02

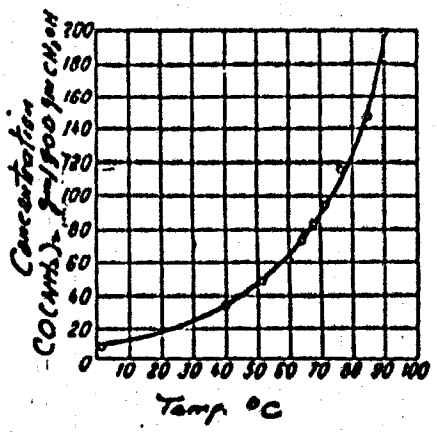


Fig. 2. Solubility of urea in methanol.

Card 4/4

IOVI, A.; TORCHESHNIKOV, N.S.; [illegible]; [illegible], V.A.; MUKHINA, A.I.

Production of urea based on carbon monoxide. Khim. prom. no. 4: 244-248 Ap '64. (MIRA 17:7)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni Mendeleyeva i Gosudarstvennyy nauchno-issledovatel'skiy i produktov organicheskogo sinteza.

L 8402-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pe-4/Pb-4 RPL/RAEM(1) RM

ACCESSION NR: AP4043754 S/0064/64/000/008/0025/0027

AUTHOR: Iovi, A.; Torocheshnikov, N. S.; Lyudkovskaya, M. A.; Klevke, V. A.

TITLE: Preparation of urea from carbon monoxide

SOURCE: Khimicheskaya promy*shlennost', no. 8, 1964, 25-27

TOPIC TAGS: urea, urea preparation, ammonia, carbon monoxide, sulfur, hydrogen sulfide, methanol

ABSTRACT: The authors have described in a previous study (Khim. prom., no. 4, 1964, 244) equipment and a procedure for the preparation of urea from ammonia, carbon monoxide, and sulfur in methanol at 100—120C and at up to 21 atm. They showed that this process is of potential interest for the production of urea on an industrial scale. This paper deals with the effects of the component ratio, reaction time, and addition of hydrogen sulfide to the reaction mixture on the yield of urea under various conditions. Most experiments were conducted with a $NH_3/S/CO$ ratio of 1.4/1/1.36. It was shown that: 1) The role of H_2S is reduced to facilitating the dissolution of S in methanol.

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L 8402-65
ACCESSION NR: AP4043754

2

H_2S should not be used when urea is produced batchwise. H_2S must be used when urea is prepared by a continuous process in which the reaction mixture is prepared outside the synthesis column in order to prevent the deposition of S in the apparatuses and tubing. 2) The highest urea yields are obtained when ammonia is used in 60—70% excess. 3) The methanol concentration of the reaction mixture can vary from 54 to 75% depending on other reaction conditions. 4) A reaction time of 25—30 min is adequate. 5) In one of the experiments the urea yield increased from 92% to 94.3% with an increase of the temperature from 100 to 120°. Orig. art. has: 5 figures and 1 table.

ASSOCIATION: MKhTI im. Mendeleyeva; GIAP

SUBMITTED: 00 ATD PRESS: 310' ENCL: 00

SUB CODE: GC NO REF SOV: 001 OTHER: 001

Card 2/2

KLEVKE, V.A.; KANTOR, A.S.; LYUDKOVSKAYA, B.G. Prinimala uchastiye SEREGINA, R.P.

Study of nitrophoska pulp compositions by sulfate and sulfuric acid methods. Zhur. prikl. khim. 37 no.11:2334-2341 N '64 (MIRA 18:1)

IOVI, A.; TOROCHESHNIKOV, N.S.; LYUDKOVSKAYA, M.A.; KLEVKE, V.A.

Production of urea on the base of carbon monoxide. Khim. prom. 40 no.8:585-587 Ag '64. (MIRA 18:4)

1. Moskovskiy ordena Lenina khimiko-tekhnologicheskiy institut imeni D.I.Mendeleyeva i Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut azotnoy promyshlennosti i produktov organicheskogo sinteza.

LYUDKOVSKAYA, M.A.; FRIDMAN, S.D.; KLEVKE, V.A.

Removal of carbon dioxide from gases by means of a "hot" potash solution. Khim. prom. 41 no.5:339-343 My '65. (MIRA 18:6)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut azotnoy promyshlennosti i produktov organicheskogo sinteza.

FRIDMAN, S.D.; KLEVKE, V.A.; BELYAYEVA, N.N.; KIRIKDASOVA, R.Ya.; SVESHNIKOVA, V.S.; Prinimali uchastiye: AKIMOVA, M.D.; FUTORYANSKAYA, M.Ya.

Condensation of urea with formaldehyde for the production of fertilizers with slowly assimilable nitrogen. Zhur. prikl. khim. 38 no.5:1091-1097 My '65. (MIRA 18:11)

L 27954-66 EWT(m)/EWP(j) RM

ACC NR: AP6017735 SOURCE CODE: UR/0064/65/000/011/0020/0023

AUTHOR: Ivin, A. A.; Torocheshnikov, N. S.; Lyubkovskaya, M. A.; Klevke, V. A. 30 B

ORG: MIKhTI im. D. I. Mendeleyev; GIAP

TITLE: Preparation of urea based on carbon monoxide

SOURCE: Khimicheskaya promyshlennost', no. 11, 1965, 20-23

TOPIC TAGS: urea, ammonia, carbon dioxide, carbon monoxide, organic synthetic process

ABSTRACT: The synthesis of urea based on carbon monoxide has a number of advantages in comparison with its production from carbon dioxide and ammonia: considerably lower pressure (approximately 21 atm. instead of 200) and temperature (110° instead 200°C); higher yield of the product (98% instead of 50-60%) with a considerably lower excess of ammonia (40% instead of 100-200%) and higher degree of conversion to urea in a single pass (68.5% instead of 17-25%); possibility of using construction material of cheaper steels; use of gaseous ammonia.

The proposed method of obtaining urea from carbon monoxide not only expands the raw material base for its production but also is economically advantageous. Orig. art. has: 4 figures and 1 table. [JPRS]

SUB CODE: 07/ SUBM DATE: none / ORIG REF: 005/ OTH REF 002

Card 1/1 BLG

UDC: 661.717:5.002.3:661.993

FEYGIN, B.A.; BASOV, A.N.; KOSTYUKOVSKAYA, S.N.; [illegible]-AKHMAZAROV, T.Kh.; KIRYUSHEV, M.A.; KOGAN, Yu.S.

Economic evaluation of the efficiency of alternatives for remodeling existing catalytic cracking units. Neftepererab. i neftekhim. no.10: 11-14 '64. (MIRA 17:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke nefti i gaza i polucheniyu iskusstvennogo zhidkogo topliva.

KLEVLEYEV, M.A.; SKOBLO, A.I.

Determination of the maximum rate of the countercurrent contacting of liquids with fine-grained materials. Khim. i tekh. topl. i masel 8 no.12:18-21 D '63. (MIRA 17:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke nefti i gazov i polucheniyu iskusstvennogo zhidkogo topliva.

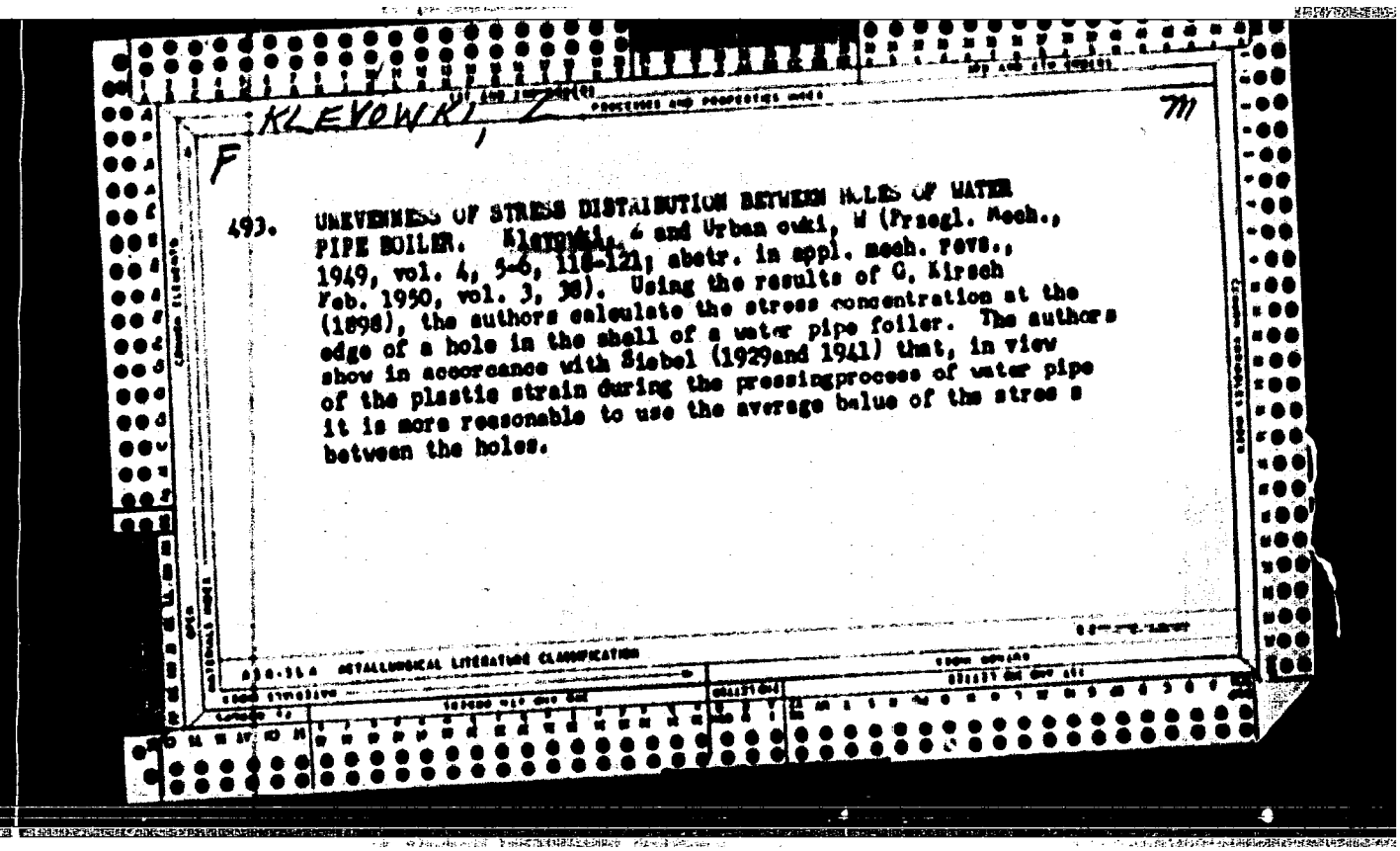
KLEVLIN, V.A., insh. (Kuybyshev)

Horizontal pipe laying under embankments. Stroi. pred. neft. prom. 2 no.12:18-19 D '57. (MIRA 11:3)
(Pipelines)

KOROTKAYA, L., promyshlenno-sanitarnyy vrach; KLEVOVOY, M.

On a scientific basis. Okhr.truda i sots.strakh. 5 no.4:10-11 Ap '62. (MIRA 15:4)

1. Predsedatel' zavodskogo komiteta Luganskogo teplovozostroitel'nogo zavoda imeni Oktyabr'skoy revolyutsii (for Khlevovoy).
(Lugansk—Locomotive works—Hygienic aspects)



KLEVOWKI, I

F

493. UNEVENNESS OF STRESS DISTRIBUTION BETWEEN HOLES OF WATER PIPE BOILER. Klevowki, I and Urban owki, W (Przegl. Mech., 1949, vol. 4, 5-6, 118-121; abstr. in appl. mech. revs., Feb. 1950, vol. 3, 38). Using the results of G. Kirsch (1898), the authors calculate the stress concentration at the edge of a hole in the shell of a water pipe foiler. The authors show in accordance with Siebel (1929and 1941) that, in view of the plastic strain during the pressingprocess of water pipe it is more reasonable to use the average balue of the stres s between the holes.

TANCHER, Vladimir Karlovich, kand.filos.nauk; KLEYTSOV, A.I., kand.filos. nauk, red.; LISENKO, P.K. [Lysenko, P.K.], red.

[Soviet people are building a communist society] Radians'kyi narod buduie komunistychne suspil'stvo. Kyiv, 1958. 46 p. (Tovarystvo dlia poshyrennia politychnykh i anukovykh znan' Ukrains'koi RSR. Ser.1, no.5) (MIRA 12:3)
(Russia--Economic conditions)

KLEVTSOV, A.I., dotsent

Causation and the phenomena of medicine. Mek.filos.vop.med.i est. no.2:282-298 '60. (MIRA 15:7)

1. Kafedra dialekticheskogo i istoricheskogo materializma imeni Bogomol'tsa.
(DISEASES—CAUSES AND THEORIES OF CAUSATION)
(MEDICINE—PHILOSOPHY)

KLEVTSOV, Dmitrii Stepanovich.

Leather industry equipment Moskva, Gos. nauchno-tekhn. izd-vo Ministerstva promyshl. tovarov shirokogo potrebleniia SSSR, 1954. 430 p. (55-20646)

TS967.E7

KLEVTSOV D.S. Dmitriy Stepanovich

YERSHOV, Boris Mikhaylovich; KLEVTSOV, D.S.; PLEMYANNIKOV, M.N., redaktor; SMOL'YAKOVA, M.V., tekhnicheskiy redaktor

[Leather industry equipment] Oborudovanie koshevennogo proizvodstva. Moskva, Gos. nauchno-tekhn. izd-vo Ministerstva promyshlennykh tovarov shirokogo potrebleniia SSSR, 1954. 430 p. (MLRA 7:10)
(Leather industry--Equipment and supplies)

KLEVTSOV, I.A., kandidat tekhnicheskikh nauk.

Strengthening plastic and structurally plastic subsidences by calcination and heating. Trudy TSNII MPS no. 89:42-86 '54. (Railroad engineering)(Soil stabilization) (MLRA 8:2)

SHAKHUNYANTS, G.M., doktor tekhn.nauk, prof.; KECHAYEV, B.I., kand. tekhn.nauk; KLEVTSOV, I.A., kand.tekhn.nauk; PASHCHENKO, B.V., inzh.; PETUSHKOVA, I.K., inzh., red.; BOBROVA, Ye., tekhn.red.

[Landslide protection on railroads of the U.S.S.R.] Opytbor'bys opolzniamina zheleznykh dorogakh SSSR. Moskva, Vses. Izdatel'sko-poligr. ob"edinenie M-va putei soobshcheniia, 1961. 183 p. (Moscow. Moskovskii institut inzhenerov zheleznodorozhnogo transporta. Trudy, no.211.) (MIRA 14:7)
(Landslides) (Railroads--Earthwork)

ACC NR: AT7005249 (N) SOURCE CODE: UR/2631/66/000/008/0113/0118

AUTHOR: Arkhipov, G. G.; Klevtsov, L. P.; Stepanov, G. K.

ORG: none

TITLE: Palladium hydrogen electrode in molten carbonates

SOURCE: AN SSSR. Ural'skiy filial. Institut elektrokhimii. Trudy, no. 8, 1966. Elektrokhimiya rasplavlennykh solevykh i tverdykh elektrolitov; fiziko-khimicheskiye svoystva elektrolitov i elektrodnyye protsessy (Electrochemistry of fused salts and solid electrolytes; physicochemical properties of electrolytes and electrode processes), 113-118

TOPIC TAGS: palladium, gas diffusion, hydrogen, carbonate, electric polarization

ABSTRACT: The behavior of nonporous gas-diffusion hydrogen electrodes of palladium in a molten carbonate electrolyte was studied by determining the dependence of the electrochemical efficiency on the thickness of the electrode wall, temperature, and pressure. Anodic polarization curves showed that a 250 μ thick palladium electrode polarizes most strongly at 500°, but that it works satisfactorily at higher temperatures, and at a polarization of 200-300 mV withstands loads of 600-800 mA/cm^2. The current characteristics of the electrode improve with increasing hydrogen pressure. The results obtained are shown to be in good agreement with the following equation describing the diffusion of hydrogen through nonporous metallic walls:

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ACC NR: AT7005249

$$J = K \frac{p}{d} e^{-\frac{E_0}{RT}},$$

where J is the diffusion stream, d the thickness of the metal layer, E_0 the heat of activation of diffusion, p the pressure, T the temperature, R the gas constant, and K a constant dependent on the nature of the metal. Orig. art. has: 4 figures.

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 006

Card 2/2

KLEVTSOV, L.P.; ARKHIPOV, G.G.; STEPANOV, G.K.

Oxygen ionization on a platinum electrode partially immersed in a molten carbonate electrolyte. Elektrokhimiia 1 no.10:1304-1307 O '65. (MIRA 18:10)

1. Institut elektrokhimii Ural'skogo filiala AN SSSR.

KLEVTSOV, I.V., gornyy inzh.

Systems of spacing in delayed multiple-row blasting. Vzryv. delo no.54/11:198-203 '64. (MIRA 17:9)

1. Rudnik Severnogo gorno-obogatitel'nogo kombinata.

KLEVTSOV, I.V., inzh.; MARCHUK, V.D., inzh.

Reducing the seismic effect of large scale blasting in pits. Bezop.truda v prom. 6 no.12:19-21 D '62. (MIRA 15:12)

1. Yuzhnyy gornoobogatitel'nyy kombinat (for Klevtsov).
2. Krivorozhskiy nauchno-issledovatel'skiy institut gornorudnoy promyshlennosti (for Marchuk).
(Blasting)

STEPANOV, O.K.; KLEVTSOV, L.P.

Apparatus for the determination of hydraulic characteristics of gas diffusion electrodes. Trudy Inst. elektrokhim. UFAN SSSR no.3:185-189 '62. (MIRA 16:6)

(Electrodes) (Porous materials—Permeability)

STEPANOV, G.K.; KLEVTSOV, L.P.

Determination of the specific surface and average diameter of powder particles in a steady regime of gas filtration. Trudy Inst. elektrokhim. UFAN SSSR no.3:179-184 '62. (MIRA 16:6)

(Porous materials—Permeability)

a L 9909-66 EWP(e)/EWT(m)/ETC/EWG(m)/EWA(d)/T/EWP(t)/EWP(k)/EWP(z)/EWP(b) DG/JD

ACC NR: AT5029250 SOURCE CODE: UR/2631/65/000/006/0145/0150

AUTHOR: Klevtsov, L. P.; Stepanov, G. K.

ORG: Institute of Electrochemistry, Ural Branch, Academy of Sciences SSSR (Akademiya nauk SSSR, Ural'skiy filial, Institut elektrokhimii)

TITLE: Study of the structure of finely porous media by capillarometry. Report No. 1.

SOURCE: AN SSSR. Ural'skiy filial. Institut elektrokhimii. Trudy, no. 6, 1965. Elektrokhimiya rasplavlennykh solevykh i tverdykh elektrolitov (Electrochemistry of fused salts and solid electrolytes), 145-150

TOPIC TAGS: porous metal, gas diffusion, electrode

ABSTRACT: The capillarometric method is used to study the structure of finely porous nickel samples. The method is based on the known relation between the pore diameter and pressure of the liquid in the pore, which is written as follows:

$$p = \frac{4\delta\cos\theta}{d}$$

where p is the pressure, δ the surface tension of the liquid permeating the sample, θ the contact angle, and d the effective pore diameter. Knowing θ and δ, the pore diameter can be calculated by measuring p. The procedure employed in measuring the pressure is described.

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L 9909-66

ACC NR: AT5028250

The advantage of the method, which can be used for the study of porous electrodes in electrochemistry, is the fact that it permits the study of pore distribution under dynamic conditions very similar to those prevailing in actual electrodes. In addition, it permits measurements without destruction of the sample and is easy to carry out. Orig. art. has: 6 figures and 5 tables.

SUB CODE: 07, 11 / SUBM DATE: none / ORIG REF: 008 / OTH REF: 001

Card 2/2

L 7973-66 EWT(m)/EEC/EWG(m)/T/EWP(t)/EWP(b) IJP(c) DS/JD/JG

ACC NR: AP5025084 SOURCE CODE: UR/0364/65/001/010/1304/1307

AUTHOR: Klevtsov, L. P.; Arkhipov, G. G.; Stepanov, G. K.

ORG: Electrochemical Institute of the Ural Branch AN SSSR (Institut elektrokhimii Ural'skogo filiala Akademii nauk SSSR)

TITLE: The ionization of oxygen on a platinum electrode partially submerged in a molten carbonate electrolyte

SOURCE: Electrokhimiya, v. 1, no. 10, 1965, 1304-1307

TOPIC TAGS: gas ionization, oxygen, electrode, platinum, electrolytic cell, carbonate, potassium, sodium, lithium

ABSTRACT: The experiment was carried out in a hermetically sealed cell. The electrode was a platinum cylinder attached to an alundum holder. A micrometer screw turned by an electric motor with a reducer made it possible to raise the electrode slowly out of the melt (1 mm in 5 min.). The electrode being investigated was polarized as the cathode. The anode was a cylinder of platinized tin with an area of 60 cm^2, that is, 30 times greater than that of the electrode being

UDC: 541.135.3

Card 1/3

investigated. The electrolyte was a eutectic mixture of potassium, sodium, and lithium carbonates. The working gas was a mixture of oxygen and carbon dioxide in a 1:2 ratio. The voltage in the cell was set with a potentiometric scheme. Measurements of the current were made every 2.5 min, which corresponded to a displacement of the electrode by 0.5 mm. Experiments were run at 500, 600 and 700 C. The results are exhibited graphically. At 700 C the curves are characterized by a change in the ionization current as a function of the position of the electrode. All the curves can be divided into three sections. The first section, close to horizontal, reflects the residual currents in a completely immersed electrode. The second shows a more or less sharp rise in the ionization current. The third section reflects the limiting value of the ionization current which decreases somewhat as the electrode is lifted out of the electrolyte. A characteristic stepwise rise in the ionization current sets in already as a potential of 0.1 volt. The magnitude of the ionization current is a function of the magnitude of the applied voltage. Analogous curves were obtained at 500 and 600 C. At 500 C, the maximum ionization current is only 3-5 times greater than the residual current. At 600-700 C, the difference between the residual and the max-

L 7973-66
ACC NR: AP5025084

imum current increased by approximately 9-10 times. Another curve shows the ionization current as a function of the temperature, at a constant potential. With an increase in the temperature from 450 to 500 C, the maximum current increases 4 times. A further fourfold increase in the current is attained only by a 100C increase in the temperature. Orig. art. has: 3 figures

SUB CODE: GC/ SUBM DATE: 28Jun65/ ORIG REF: 002/ OTH REF: 003

Card 3/3

BOKSER, O.Ya.; KLEVTSOV, M.I.

Improvement in the radiomethod for the measurement of reflexes. Biul. eksp. biol. i med. no.2:111-113 F '61. (MIRA 14:5)

1. Iz Ivanovskogo gosudarstvennogo meditsinskogo instituta. Predstavlena akademikom V.N.Chernigovskim.

(REFLEX) (CONDITIONED RESPONSE)
(PHYSIOLOGICAL APPARATUS)

BOKSER, Oskar Yakovlevich; KLEVTSOV, Mikhail Ivanovich; VASIL'YEV, R.R., red.

[Radioelectronic apparatus for the time analysis of reflexes] Radioelektronnaia apparatura dlia vremennogo analiza refleksov. Moskva, Izd-vo "Energiia," 1964. 62 p. (Massovaia radiobiblioteka, no.512) (MIRA 17:5)

BOKSER, O., vrach; KLEVTSOV, M., inzh.

Reflex telemetering device. Radio no.5:51-52 My '61. (MIRA 14:7)
(Medical electronics)

DENISOV, V., kand.tekhn.nauk; KLEVTSOV, M., inzh.

Biotelemetry. Radio no.10:16-17 O '61. (MIRA 14:10)
(Telemetering) (Medical electronics)

BOKSER, Oskar Yakovlevich; KLEYTSOV, Mikhail Ivanovich; NAZAROV, V.A., red.; LYUDKOVSKAYA, N.I., tekhn. red.

[Radioreflexometry; equipment, operation, new opportunities of research] Radiorefleksometriia; apparatura, ekspluatatsiia, novye vozmozhnosti issledovaniia. Moskva, Medgiz, 1963. 154 p. (MIRA 17:3)

AKULINICHEV, Ivan Timofeyevich; BAYEVSKIY, Roman Markovich; ZAZYKIN, Konstantin Pavlovich; FREYDEL', Vladimir Rafailovich; KLEVTSOV, M.I., red.; LARIONOV, G.Ye., tekhn.red.

[Radio electronics in space medicine] Radioelektronika v kosmicheskoi meditsine. Moskva, Izd-vo "Energiia," 1964. 43 p. (Massovaia radiobiblioteka, no.505). (MIRA 17:4)

ACCESSION NR AM1008923 BOOK EXPLOITATION S/

Bokser, Oskar YAkovlevich; Klevtsov, Mikhail Ivanovich

Radioreflexometry; apparatus, operation and new research possibilities (Radioreflekso metriya; apparatura, ekspluatatsiya, novy*ye vozmozhnosti issledovaniya), Moscow, Medgiz, 1963, 154 p. illus., biblio. 2,000 copies printed.

TOPIC TAGS: biology, medicine, radioreflexometry, time measurement, radiotelemetry

PURPOSE AND COVERAGE: This book is devoted to a description of one of the most real methods of studying functions of living organisms -- the telemetric method of studying reflexes. The book gives the characteristics of quantitative evaluation of reflex activity, cites the principles of time-measuring instruments in general and chronoreflexometers in particular. There is a detailed description of reflexometers produced by the Soviet industry and problems of using them for specific research are cited. Special attention is given to new uses and possibilities for research that are permitted by the new equipment by radiotelemetry and wire communication between the experimenter and the subject. The prospects for the development of radioreflexometry and its equipment are noted. The book is intended for neurophysiologists, psychologists, physicians, and medical students interested in radioreflexometry and also for engineers and technicians in medical-biological institu-

Card 1/2

ACCESSION NR AM4008923

tions and the medical industry.

TABLE OF CONTENTS [abridged]:

SUB CODE: LS, EC SUBMITTED: 030ct63 NR REF SOV: 080
OTHER: 016 DATE ACQ: 16Apr64

Card 2/2

VERKHALO, Yuriy Nikolayevich; KLEVTSOV, M.I., red.

[Electronic devices for physiological research; samples from radio equipment exhibitions] Elektronnye pribory dlia fiziologicheskikh issledovanii; eksponaty radiovystavok. Moskva, Energiia, 1964. 38 p. (Massovaia radiobiblioteka, no.536) (MIRA 17:9)

KLEV'SOV, N.

Masters of grain drying in the Kazakh S.S.R. Muk.-elev.prom. 24 no.2:5-6 F '58. (MIRA 11:4)

1. Ministerstvo khleboproduktov KazSSR.
(Kazakhstan--Grain--Drying)

KLEVTSOV, F., kapitan

Fire training in the platoon. Voen.vest. 39 no.4:75-80 Ap '60.
(MIRA 13:12)

(Shooting, Military)

KLEVTSOV, P., mayor

Planning of preparation fire in the company. Voen.vest. 41 no.12:102-105 D '61. (MIRA 15:3)
(Shooting, Military)

KLEVTSOV, P.

Electric power per worker and its productivity. Sots. trud 7 no.10:19-25 O '62. (MIRA 15:10)

(Electrification) (Labor productivity)

SOKOLOV, M.M.; KLEVTSOV, P.P.; FEDOROV, A.A.; KHITEYEV, P.P.

Separate determination of uranium, thorium, and potassium in natural occurrence using a scintillation gamma-spectrometer. Vop.rud.geofiz. no.4:48-57 '64. (MIRA 18:1)

POLYAKOV, B.I.; KLEVTSOV, P.P.; YEGOROV, E.V.

A laboratory equipment for the quantitative determination of the Clark beryllium concentrations. Vop. rud. geofiz. no.5: 142-145 '65. (MIRA 18:9)

KLEVTSOV, P.V.

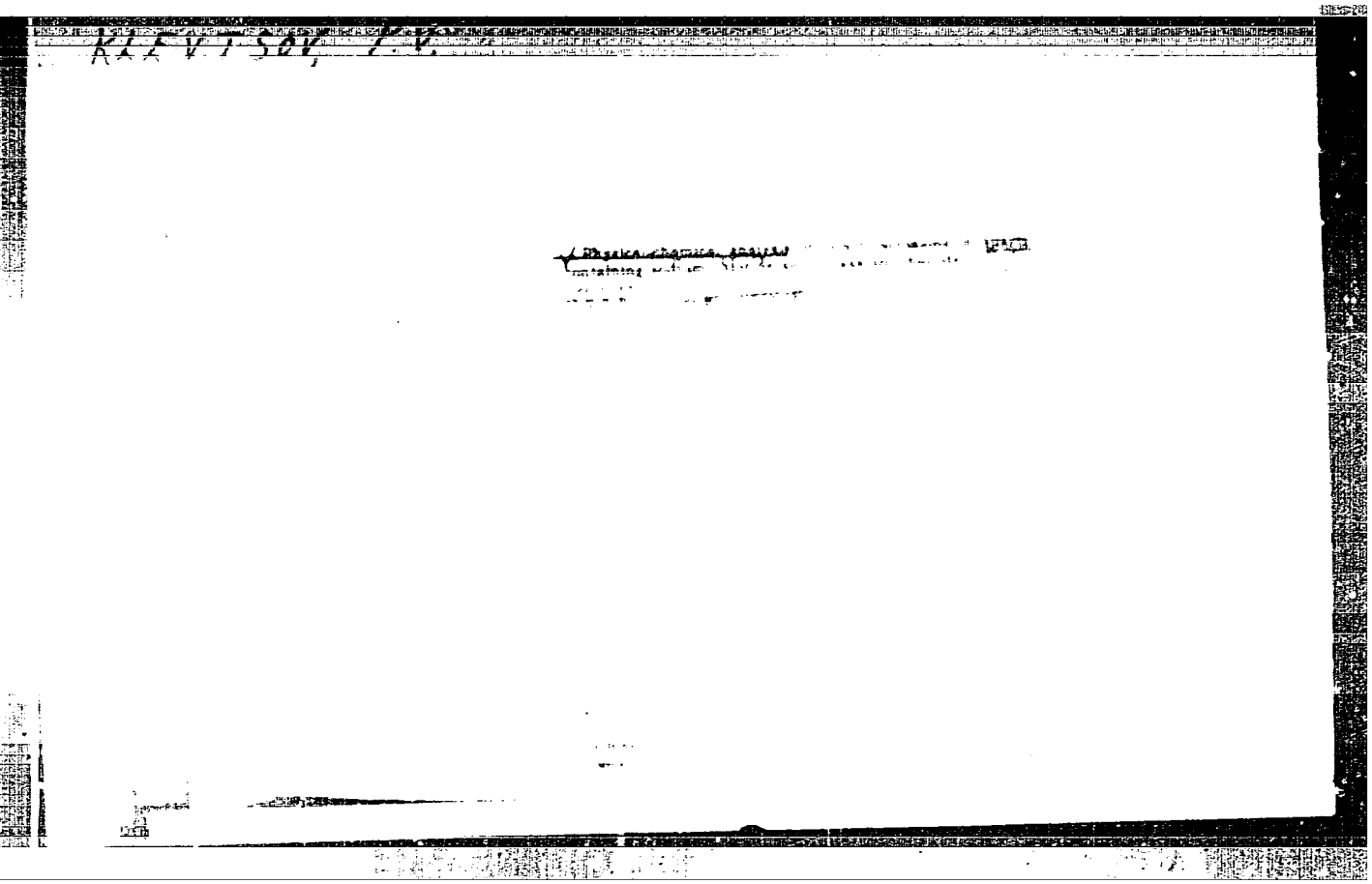
Use of the method of Tepler's bands in the quantitative investigation of a jet flame. S. A. Abrukov and [redacted] Klevtsov (V. I. Ul'yanov-Lenin State Univ., [redacted] Khim. 27, 1115-20(1953). — The Tepler-band method was used to det. the distribution for n, A and the temp. within the inner cone of a flame. The flame used was a 40% mixt. of CO and air burned in a glass tube with an inside diam. of 5.9 mm. and a length of 700 mm. The value of the max. temp. (1765°) agrees with that obtained by the method of rotating spectral lines (1820°). The Tepler-band method is satisfactory for studying the structure of a flame. J. Rovtar Leach

9/1/55 ew

KLEVTSOV, P. V.

KLEVTSOV, P. V.: "Investigation of some thermodynamic properties of concentrated aqueous solutions of salts as applied to geological thermometry". Moscow, 1955. Acad Sci USSR. Inst of Crystallography. (Dissertation for the Degree of Candidate of PHYSICOMATHEMATICAL Sciences)

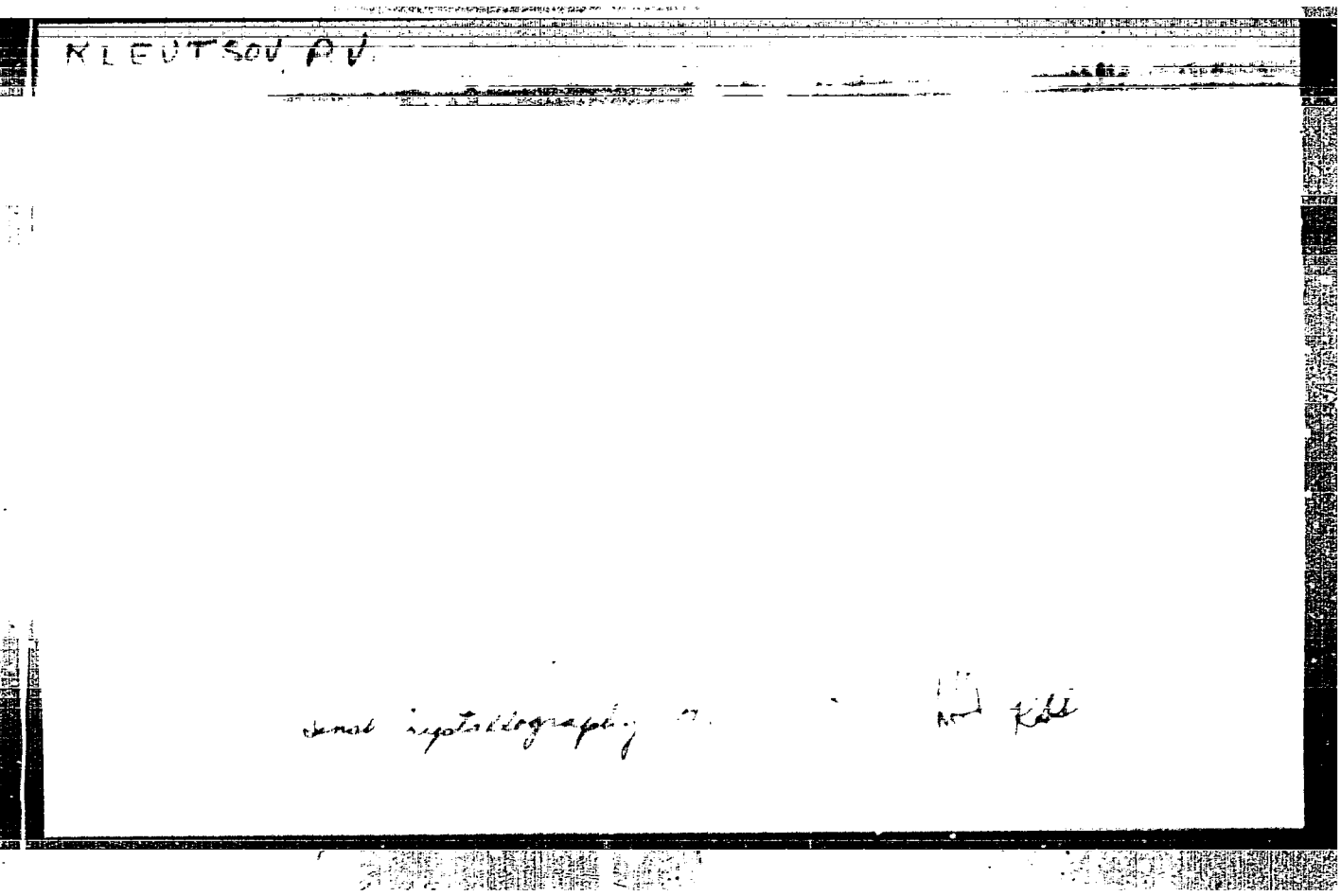
SO: Knizhnaya Letopis' No. 51, 10 December 1955



LEMMLEYN, G.G.; KLEVTSOV, P.V.

Correlation of thermodynamic parameters of P-T-V in water and 30% NaCl aqueous solutions. Zap.Vses.min.ob-va 85 no.4:529-534 '56. (MLRA 10:2)

1.Institut kristallografii Akademii nauk SSSR.
(Mineralogical chemistry) (Hydrostatics)



KLEVTSOV, P.V.; LEMMLEYN, G.G.

Determination of factors governing the formation of South Ural quarts based on CO_2 liquid solutions and aqueous salt solutions. Zap. Vses. min. ob-va 87 no.2:159-165 '58. (MIRA 11:9)

1. Institut kristallografii AN SSSR, Moskva. 2. Deystvitel'nyy chlen Vsesoyuznogo mineralogicheskogo obshchestva (for Lemmleyn).
(Ural Mountains--Quarts)

KLEVTSOV, P.V.

Density of solutions in the system H_2O - NaCl - KCl. Zap. Vses. min. ob-va 88 no.1:93-96 '59. (MIRA 12:3)
(Phase rule and equilibrium) (Sodium chloride)
(Potassium chloride)

KLEVTSOV, P.V., LEBEDEVA, G.G.

Determining the lowest pressure at the time of the formation of quarts as illustrated by crystals from the Pamirs. Zap. Vses. min. ob-va 88 no.6:661-667 '59. (MIRA 13:8)

1. Institut kristallografii AN SSSR.
(Pamirs--Quarts crystals)

~~3 (6)~~ 5.4120 66436

AUTHORS: Klevtsov, P. V., Lemmlein, G. G. SOV/20-128-6-44/63

TITLE: Correction of Pressure and Temperatures of the Homogenization of NaCl Aqueous Solutions

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 6, pp 1250 - 1253 (USSR)

ABSTRACT: NaCl, KCl, and other salts are always, mostly in prevailing quantities, contained in the solutions enclosed in the growth of hydrothermal minerals (Refs 7-9). The liquid inclusions in minerals often consist of concentrated aqueous solutions of many salts and contain their microcrystals. The diagrams of the above corrections (Ref 10) of pressure during the formation of the mineral are constructed on the strength of the interrelations between the thermodynamic parameters P - T - V - X. The true temperature of the crystal formation or of the filling of cracks may be determined on the strength of these diagrams. At the same time these diagrams yield data on the pressure at a certain temperature in a closed system of a constant space. The authors investigated the interrelations of P - T - V for several compositions of the binary system H_2O - NaCl. In addi-

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Correction of Pressure and Temperatures of the Homogenization of NaCl Aqueous Solutions

SOV/20-128-6-44/63

tion to the correction diagram for a NaCl solution of 30% (Ref 1) the authors give now such diagrams for solutions of 5-, 10-, and 20%. The interrelations of the mentioned parameters were measured between 150 and 500° at a pressure up to 1700 atmospheres and at solidities corresponding to the homogenization temperatures for a liquid phase between 150 and 400°. A special paper deals with the great series of the isochores for each individual concentration and on the P-T-V diagrams. Figure 1a shows the results of control experiments with pure water (well comparable with those of reference 4). Figure 1b - g shows the above corrections. The high-pressure isobaric lines (more than 1700 atmospheres dotted line) were constructed on the strength of extrapolated data. For pressures above the critical one the corrections rise continuously with the temperature rise. The corrections are reduced within a corresponding pressure range in the approximation of the homogenisation temperature to the critical temperature of the solution. Thus the order of magnitude of the critical pressure of the solution may be estimated on the strength of the character of the change of the isobaric lines (in coordinates $\Delta T - T_{homogenis.}$). The difference in the

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66436

Correction of Pressure and Temperatures of the Homogenization of NaCl Aqueous Solutions SOV/20-128-6-44/63

correction data of temperature is considerable for solutions of different concentration within the range of higher temperatures. This difference is the greater the higher the temperature of the homogenization. It increases especially in little concentrated solutions (Fig 1b). There are 4 diagrams and 13 references, 9 of which are Soviet.

ASSOCIATION: Institut kristallografii Akademii nauk SSSR (Institute of Crystallography of the Academy of Sciences, USSR)

PRESENTED: April 21, 1959, by A. V. Shubnikov, Academician

SUBMITTED: March 25, 1959

Card 3/3

ALEKSANDROV, K.S.; KLEVTSOV, P.V.; KERONOVA, N.F.

Fifth International Congress on Crystallography. Zhur. strukt. khim. 1 no. 4:504-507 N-D '60. (MIRA 14:2)
(Crystallography--Congresses)

LEMLEYN, G.G.; KLEVTSOV, P.V.

Correlation of principal thermodynamic parameters for a part of the system H_2O - NaCl. Geokhimiia no.2:133-142 '61. (MIRA 14:3)

1. Institut kristallografii AN SSSR, i Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR.
(Salt) (Crystallization) (Thermodynamics)

KLEVTSOV, P.V.

Crystallization of magnetic garnets under hydrothermal conditions. Izv. SO AN SSSR no.7 Ser.khim.nauk no.2:3-7 '63. (MIRA 16:10)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR, Novosibirsk.

S/181/63/005/001/050/064
B108/B18C

AUTHORS: Kevtsov, P. V., and Zamoshskiy, V. D.

TITLE: Selective etching of magnetic garnet crystals

PERIODICAL: Fizika tverdogo tela, v. 5, no. 1, 1963, 339-340

TEXT: Due to lack of a good method of revealing dislocations, little is known about the effect of structural defects on the physical properties of garnet-type ferrites. The authors therefore sought to find an etching agent that reacts on structural defects. Ferrite-garnets of yttrium, gadolinium, and dysprosium were rinsed and then etched. Two agents produced good results. The first, (1), had 3 parts 55-% nitric acid, 1 part HCl (35.4%) and 1 part $FeCl_3$; etching time 10 - 15 min. To increase selectivity aliquot quantities were added, of substances which would reduce the dissolution rate parallel to the (110) face and increase it perpendicular to this face. This resulted in agent (2), which was composed of 300 ml (1), 1 g Zn, 0.5 g Na_2SO_3, 1 g $Na_2B_4O_7 \cdot 10H_2O$, 0.1 g $(C_7H_9OH)_2 \cdot H_2SO_4$, and 0.25 g $C_6H_4(OH)_2$; etching time 20 - 30 min.

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The etch pits had rhombic bases with their sides parallel to those of the rhombododecahedral faces. The pits were arranged randomly or in lines. The main role in the agents described is played by the Fe^{3+}, Zn^{2+}, and Na^{+} ions since their ionic radii are close to those of Cd^{3+}, Dy^{3+}, and Y^{3+}. There is 1 figure.

ASSOCIATION: Institut neorganicheskoy khimii SO AN SSSR, Novosibirsk (Institute of Inorganic Chemistry of SO, AS USSR, Novosibirsk)

SUBMITTED: August 2, 1962

L 18719-63 EWT(1)/EWP(q)/EWT(m)/BDS/ETD-2 AFFTC/ASD/ESD-3 JD/JG

ACCESSION NR: AP3003905 S/0181/63/005/007/2012/2015

65

AUTHORS: Klevtsov, P. V.; Zamoshskiy, V. D. A 63

TITLE: The nature of hydrothermal etching figures in ferrite crystals with garnet structure

SOURCE: Fizika tverdogo tela, v. 5, no. 7, 1963, 2012-2015

TOPIC TAGS: hydrothermal etching, etching figure, ferrite, crystal, garnet, etch pit, orthorhombic dodecahedron, tetragonal trioctahedron, selectivity, autoclave, dislocation

ABSTRACT: The authors have made a study of surface structure because it furnishes information on the actual structure and growth processes in garnet crystals under hydrothermal conditions. They studied garnet ferrite crystals under the microscope as the surfaces are subjected to hydrothermal and chemical etching. A characteristic feature of this etching under hydrothermal conditions is its selectivity. Etch pits have a well-defined rhombic pyramidal shape, the sides of the pyramidal base being parallel to the edges of the intersection between the face being treated and the adjoining rhombic dodecahedral or tetragonal trioctahedral {011} faces. The pits are chaotically distributed, but occur also along lines in series similar to

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L 18719-63
ACCESSION NR: AP3003905 2

etch pits at the emergent sites of dislocations along subgrain boundaries. In these series the apices of pits lie between 0.3 and 3 μ apart, the distance differing for various crystals. Selective chemical etching supports the view that these pits are of dislocation character. Dislocations in crystals of magnetic garnets may appear through treatment (in an autoclave) of crystals by solutions of various salts at high temperatures and pressures. Orig. art. has: 2 photographs.

ASSOCIATION: Institut neorganicheskoy khimii SO AN SSSR, Novosibirsk (Institute of Inorganic Chemistry, Siberian Department, Academy of Sciences, SSSR)

SUBMITTED: 03Jan63 DATE ACQ: 15Aug63 ENCL: 00

SUB CODE: PH NO REF SOV: 002 OTHER: 000

Card 2/2

BR

ACCESSION NR: AP4044276 S/0192/64/005/004/0583/0589

AUTHOR: Klevtsov, P. V.; Klevtsova, R. F.; Sheina, L. P.

TITLE: Crystalline yttrium hydroxides

SOURCE: Zhurnal strukturnoy khimii, v. 5, no. 4, 1964, 583-589

TOPIC TAGS: yttrium hydroxide, yttrium monohydroxide, single crystal growth, hydrothermal crystal growth, ferrite crystal growth, single crystal structure

ABSTRACT: Transparent colorless crystalline phases previously observed in the products of hydrothermal synthesis of yttrium ferrite single crystals have been identified as yttrium hydroxides, YOOH and $Y(OH)_3$. The crystal structure of these hydroxides was studied goniometrically and by x-ray diffraction, chemical analysis, and other methods. The study was considered necessary for better understanding of the phase equilibria and chemical reactions in hydrothermal systems. The YOOH and $Y(OH)_3$ single crystals used in the study were synthesized in hydrothermal conditions from either Y_2O_3-Fe_2O_3-H_2O-NaOH or Y_2O_3-H_2O-NaOH system. Most of the YOOH single crystals were in the form

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ACCESSION NR: AP4044276

of hexagonal plates belonging to the prismatic class of the monoclinic crystal system and to the $P2_1/m$ space group. Typical $Y(OH)_3$ single crystals were needle-shaped, 1 cm x ~0.6 mm, belonging to the hexagonal system and to the $P6_3/m$ space group. Dimensions of the unit cell were determined for both hydroxides. The piezoelectric effect was not detected in freshly prepared YOOH or $Y(OH)_3$ crystals. The x-ray diffraction patterns of $Y(OH)_3$ crystals were found to be similar to those of $M(OH)_3$, were M is La, Nd, Sm, Gd, or Er. It was concluded that only two crystalline phases—$Y(OH)_3$ and YOOH—are formed, individually or simultaneously, in the Y_2O_3-H_2O-NaOH system below 600C. Orig. art. has: 2 figures and 3 tables.

ASSOCIATION: Institut neorganicheskoy khimii SO AN SSSR, Novosibirsk (Institute of Inorganic Chemistry, SO AN SSSR)

SUBMITTED: 11Jul63 ENCL: 00

SUB CODE: SS, IC NO REF SOV: 004 OTHER: 006

Card 2/2

L 26050-65 EWT(m)/T/EWP(t)/EWP(b) IJP(c) JD/JG

ACCESSION NR AP5001708 S/0192/64/005/006/0860/0863

AUTHOR Klevtsova, R. F., Klevtsov, P. V.

TITLE: Investigation of the crystal structure of YOOH

SOURCE: Zhurnal strukturnoy khimii, v. 5, no. 6, 1964, 860-863

TOPIC TAGS: YOOH, $Y(OH)_3$, crystal structure, IR spectra, x ray analysis

ABSTRACT: An x-ray study was made of the crystal structure of the monohydroxide YOOH and of the trihydroxide $Y(OH)_3$. The former belongs to the spatial group $P2_1/m$, the trihydroxide-$P6_3/m$. YOOH can be obtained from $Y(OH)_3$ by heating under hydrothermal conditions. The crystal structure of the two compounds is comparable--in both structures all atoms are spaced analgously. Their IR spectra were studied. The calculated Y-OH interatomic distance, 2.31 Å, was an indirect indication of the existence of hydrogen bonding in YOOH. The three hydroxide groups in $Y(OH)_3$ are not crystallochemically equivalent. "The authors thank G. N. Kustov for taking the infrared spectra." Orig. art. has: 6 figures and

Card 1/2

L 26050-65

ACCESSION NR: AP5001708

1 table

ASSOCIATION: Institut neorganicheskoy khimii SO AN SSSR Novosibirsk (Institute of Inorganic Chemistry, SO AN SSSR)

SUBMITTED: 03Jan64 ENCL: 00 SUB CODE: IC, GC

OTHER: 004

EWT(1)/EWT(m)/EWP(t)/ETI/EEC(b)-2/EWP(b) IJP(c) JD/JG/GD

ACCESSION NR: AP5018925 UR/0363/65/001/006/0912/0917
546.65-36.546.13

AUTHOR: Klevtsov, P. V.; Sheina, L. P.

TITLE: Hydrothermal synthesis and crystal structure of rare earth hydroxides

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 6, 1965, 912-917

TOPIC TAGS: rare earth hydroxide, hydrothermal synthesis, crystal structure

ABSTRACT: Rare earth hydroxides of the composition M(OH)$_3$ for elements from La [illegible] of the composition MOOH for elements from Nd [illegible] were synthesized in [illegible] solutions by the hydrothermal method. The M(OH)$_3$ compounds are [illegible] lower temperature than MOOH. The temperature of the M(OH)$_3$ → MOOH transformation decreases with increasing atomic number of the rare earth element, from > 600C for Nd to 120C for Yb. X-ray diffraction studies showed that all of the synthesized trihydroxides have a UCl_3-type structure, and that the monohydroxides have a YOOH-type structure. The lattice constants of all the compounds are tabulated. In both the mono- and trihydroxides, the unit lattice parameters decrease as the elements become heavier; this is due to the lanthanide contraction. "The authors thank P. A. Brusentsev and A. N. Rebenko for assistance

Card 1/2

L 60923-65

ACCESSION NR: AP5018925

rendered in refining the crystal lattice parameters on a computer by means of a program which they developed, and V. S. Grigor'yev for measuring the densities of the [illegible]oxides." Orig. art. has: 1 figure and [illegible] tables.

ASSOCIATION: Institut neorganicheskoy khimii SO AN SSSR (Institute of Inorganic Chemistry, SO AN SSSR)

SUBMITTED: 07Dec64 ENCL: 00 SUB CODE: IC, SS

NO REF SOV: 003 OTHER: 008

Card 2/2

KLEVTSOV, P.V.; SHEINA, L.P.

Thermographic and X-ray diffraction study of crystalline hydroxides of rare-earth elements and yttrium. Izv. AN SSSR. Neorg. mat. 1 no.12:2219-2226 D '65. (MIRA 18:12)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR.

L 6320-65 EEC(b)-2/EWT(1)/EWT(m)/EWP(b)/T/EWP(t) Pt-4 IJP(c) GO/JD/JG
ACCESSION NR: AP5016021 UR/0192/65/006/003/0469/0471
548.736

AUTHOR: Klevtsov, P. V.; Klevtsova, R. F.; Sheina, L. P.

TITLE: Crystalline yttrium hydroxychloride

SOURCE: Zhurnal strukturnoy khimii, v. 6, no. 3, 1965, 469-471

TOPIC TAGS: yttrium compound, yttrium hydroxychloride, crystal structure

ABSTRACT: The chemical composition of crystalline yttrium hydroxychloride was determined. Chemical analysis gave the following results (in wt %): Y^{3+}, 54.8, Cl^-, 22.0; H_2O + HCl, 31.3. Infrared spectra showed the absence of water of crystallization and the presence of hydroxyl groups. The results of the chemical analysis led to the formula $Y(OH)_2Cl$, which was confirmed by an x-ray structural study. The compound belongs to the rhombic system, its Laue class is D_{2h} - mmm, the unit cell parameters are a = 6.21 ± 0.03 A, b = 12.54 ± 0.06 A, c = 3.62 ± 0.02 A. The average density of the crystals measured by the flotation method is 3.71 g/cm^3, hence, the unit cell contains four formula units $Y(OH)_2Cl$ (the x-ray density is 3.73 g/cm^3). X-ray powder diagrams of the $Y(OH)_2Cl$ crystals were also studied. Orig. art. has: 1 table.

Card 1/2

L 63620-65

ACCESSION NR: AP5016921

ASSOCIATION: Institut neorganicheskoy khimii SO AN SSSR, Novosibirsk (Institute of Inorganic Chemistry, SO AN SSSR)

SUBMITTED: 04Apr64 ENCL: 00 SUB CODE: SS, GC

NO REF SOV: 006 OTHER: 000

Card 2/2

L 3294-66 EWT(l)/EWT(m)/T/EWP(t)/EWP(b)/EWA(c) IJP(c) OO/JD/JG

ACCESSION NR: AP5024361 UR/0286/65/000/015/0026/0026

66.065.5

AUTHOR: Kievtsov, P. V.; Kafali, L. M. 44,55

TITLE: Preparation of single crystals. Class 12, No. 173202

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 15, 1965, 26

TOPIC TAGS: single crystal, iron molybdate, crystal growth

ABSTRACT: An Author Certificate has been issued for a preparative method for iron molybdate single crystals by hydrothermal synthesis at 450—500C. The method involves the growing of crystals from oxides (Fe_2O_3 - $3MoO_3$) or from iron-molybdenum catalyst powder in an aqueous solution of ferrous chloride. [BO]

ASSOCIATION: none

SUBMITTED: 16Jul64 ENCL: 00 SUB CODE: SS

NO REF SOV: 000 OTHER: 000 ATD PRESS: 4113

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KIEVTSOV, P.V.

Hydrothermal synthesis of iron molybdate crystals $Fe_2(MoO_4)_3$.
Kristallografiia 10 no.3:445-446 My-Je '65.
(MIRA 18:7)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR.

KLEVTSOVA, R.F.; KLEVTSOV, P.V.

Shapes of crystal growth and crystalline structure of $YCl(OH)_2$. Dokl. AN SSSR 162 no.5:1049-1052 Je '65. (MIRA 18:7)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR. Submitted December 19, 1964.

L 47329-66 EWT(1)/EWT(m)/T/EWP(t)/ETI IJP(c) GG/JG/JD

ACC NR: AR6025760 SOURCE CODE: UR/0058/66/000/004/A077/A077

38
B

AUTHOR: Klevtsov, P. V.; Zamozhskiy, V. D.

TITLE: Influence of conditions of hydrothermal synthesis of iron garnet crystals of yttrium and of rare-earth elements on the formation of crystal-lattice defects

SOURCE: Ref. zh. Fizika, Abs. 4A648

REF. SOURCE: Sb. Simpozium. Protsessy sinteza i rosta kristallov i plenok poluprovodnik. materialov, 1965. Tezisy dokl. Novosibirsk, 1965, 12-13

TOPIC TAGS: yttrium iron garnet, rare earth element, garnet, hydrothermal synthesis, single crystal growing, crystal dislocation phenomenon, crystal defect

ABSTRACT: Single crystals of iron garnets were synthesized in solutions of $FeCl_3$ and $FeCl_2$ at temperatures up to 600C the dislocations in the crystals were displayed by chemical etching. An increase in the synthesis temperature increases the number of defects in the crystals. In crystals obtained in $FeCl_2$ solutions, the dislocation density is higher. The causes of the increased dislocation density in this case are discussed. [Translation of abstract].

SUB CODE: 20

Card 1/1 pb

EWT(1)/EWP(e)/EWT(m)/T IJP(c) 00/081

ACC NR: AR6023282 SOURCE CODE: UR/0058/66/000/003/E039/E039

AUTHOR: Zamozhskiy, V. D.; Klevtsov, P. V.

ORG: none

TITLE: Nature of interlacing spirals of growth on crystals of ferrite garnet, yttrium, and rare-earth elements

SOURCE: Ref. zh. Fizika, Abs. 3E298

REF SOURCE: Sb. Simpozium, Protsessy sinteza i rosta kristallov plenok poluprovodnik. materialov, 1965. Tezisy dokl. Novosibirsk, 1965, 12

TOPIC TAGS: ferrite, garnet, yttrium, crystal surface, crystal growth, rare earth element

ABSTRACT: A spiral-laminar mechanism under hydrothermal conditions is shown by investigating the surface structure of crystal faces. Spirals on the crystal faces {110}, generated by growth centers on the screw dislocations, are characterized by an interlacing. This interlacing is controlled by the crystal structure of the garnet. [Translation of abstract] [NT]

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L 47325-66 EWA(h)/EWT(m)/T/EWP(t)/ETI IJP(c) JD/JG/GG

ACC NR: AR6025765 SOURCE CODE: UR/0058/66/000/004/A077/A077

AUTHOR: Mill', B. V.; Klevtsov, P. V.

TITLE: Experience in the study of the conditions of hydrothermal synthesis of iron garnets of yttrium and rare-earth elements

SOURCE: Ref. zh. Fizika, Abs. 4A647

REF.SOURCE: Sb. Simpozium. Protsessy sinteza i rosta kristallov i plenok poluprovodnik. materialov, 1965. Tezisy dokl. Novosibirsk, 1965, 21

TOPIC TAGS: yttrium, iron, garnet, rare earth element, ~~garnet~~ hydrothermal synthesis, pressure effect, temperature dependence

ABSTRACT: A study was made of the conditions of hydrothermal synthesis of yttrium iron garnets (YIG) in solutions of iron chloride in the interval 400 -- 625°. In the $FeCl_3$ solution, in the absence of priming centers, the garnet is produced only under reducing conditions. In the absence of reducing conditions, the synthesis occurs above 520° when priming centers are introduced. Optimal conditions for the synthesis of YIG in $FeCl_2$ solution are found to be 450 -- 625° for mixtures with excess of iron oxide and 525 -- 540° for stoichiometric charges. The kinetics and the influence of the pressure on the synthesis of YIG in $FeCl_2$ solution are investigated. [Translation of abstract].

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Card 1/1 mjs

L 06167-67 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6032951 SOURCE CODE: UR/0363/66/002/010/1865/1869

42
41
18

AUTHOR: Mill', B. V.; Klevtsov, P. V.

ORG: Institute of Inorganic Chemistry, SO Academy of Sciences, SSSR (Institut neorganicheskoy khimii SO Akademii nauk SSSR)

TITLE: Hydrothermal synthesis of yttrium-iron garnet

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 2, no. 10, 1966, 1865-1869

TOPIC TAGS: crystal growth, hydrothermal method, ferrite, rare earth element ferrite, yttrium ferrite, garnet, yttrium, iron, inorganic synthesis

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ABSTRACT: The study of hydrothermal synthesis of yttrium-iron garnet (YIG) crystals has been continued to define more accurately the optimum conditions and the chemical mechanism of crystal growth in various hydrothermal systems. This study is part of a broader study by the same group of authors of the hydrothermal synthesis of rare earth element ferrites with garnet structure, which have valuable magnetic properties. Hydrothermal synthesis of YIG crystals was studied in the Y_2O_3- Fe_2O_3- H_2O - NaOH, Y_2O_3-Fe_2O_3- H_2O-$FeCl_3$, and Y_2O_3-Fe_2O_3- H_2O -$FeCl_2$ systems. Crystal formation, reaction kinetics, and yield of YIG crystals were investigated at variable charge composition, temperature, and pressure. YIG was synthesized at 450—550C from 5—50% NaOH solutions in floating platinium inserts in the autoclave but only from the charge rich in Fe_2O_3. Formation of YIG crystals in a $FeCl_3$ solution was detected within the 400—600C range at about 1500 atm., and with the charges of composition varying within 3:1 to 1:6 range of Y_2O_3/Fe_2O_3 molar ratios. YIG crystals obtained from $FeCl_3$

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L 06167-67
ACC NR: AP6032951

solution without seeding, but only in a reducing medium, i.e., in the presence of Fe^{2+}. Magnetite and orthoferrite crystals were formed simultaneously with YIG under these conditions. In the absence of Fe^{2+}, YIG crystals alone were grown from $FeCl_3$ solutions only on single crystal seed in hermetically sealed titanium inserts and at above 520C. The seed crystal increased by 200—300% in weight. Synthesis of YIG in $FeCl_2$ solutions was possible only from the charges with 3:5, 1:3, and 1:6 Y_2O_3/Fe_2O_3 mol. ratios. The product always contained some magnetite which was formed in the reaction of $FeCl_2$ with the Fe_2O_3 of the charge. The simultaneously producted $FeCl_3$ plays an important role in the synthetic process. High yields of YIG were obtained in $FeCl_2$ solutions in the 450—625C range from the Fe_2O_3-rich charges and in the 525—540C range from stoichiometric charges. The maximum size of the crystals was 1—1.5 mm in $FeCl_2$ solutions containing $FeCl_3$ and 1.5—2 mm in $FeCl_3$ solutions. The crystals formed in $FeCl_3$ solutions were better in quality. Recrystallization on a seed was not possible from $FeCl_2$ solutions because of decomposition of YIG in these solutions. Orig. art. has: 3 figure and 1 formula.

SUB CODE: 20/ SUBM DATE: 28Aug65/ ORIG REF: 008/ OTH REF: 004

Card 2/2

KLEVTSOV, T.A.

Physicogeographical regionalization of Dnepropetrovsk Province.
Geog. sbir. no.4:195-207 '61. (MIRA 14:8)
(Dnepropetrovsk Province--Physical geography)

KLEVTSOV, T.A. [Klievtsov, T.A.]

Landform formation in the western part of the middle Dnieper Valley within the boundaries of Dnepropetrovsk Province. Geog. zbir. no.6:19-22 '62. (MIRA 15:9)
(Dnepropetrovsk Province--Landforms)

KLEVTSOV, T.A.

The Dnieper - Krivoy Rog Canal. Izv. Vses. geog. ob-va 96
no.6:526-527 N-D '64 (MIRA 18:1)

KLEVTSOV, T.A.

Take care of the landscapes; water and atmospheric pollution control in the Krivoy Rog iron ore basin. Priroda 54 no.6:70-73 Je '65. (MIRA 18:6)

1. Krivorozhskiy pedagogicheskiy institut.